Fig. 1.

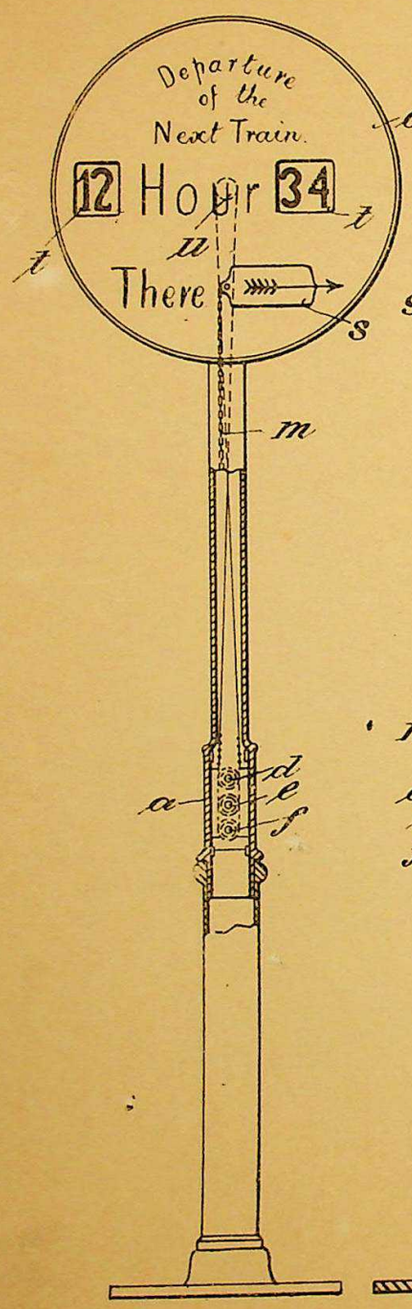

Fig. 2.

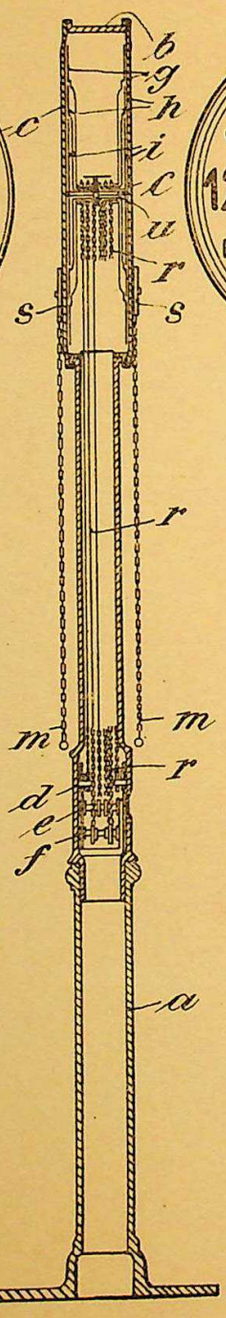

Fig. 3.

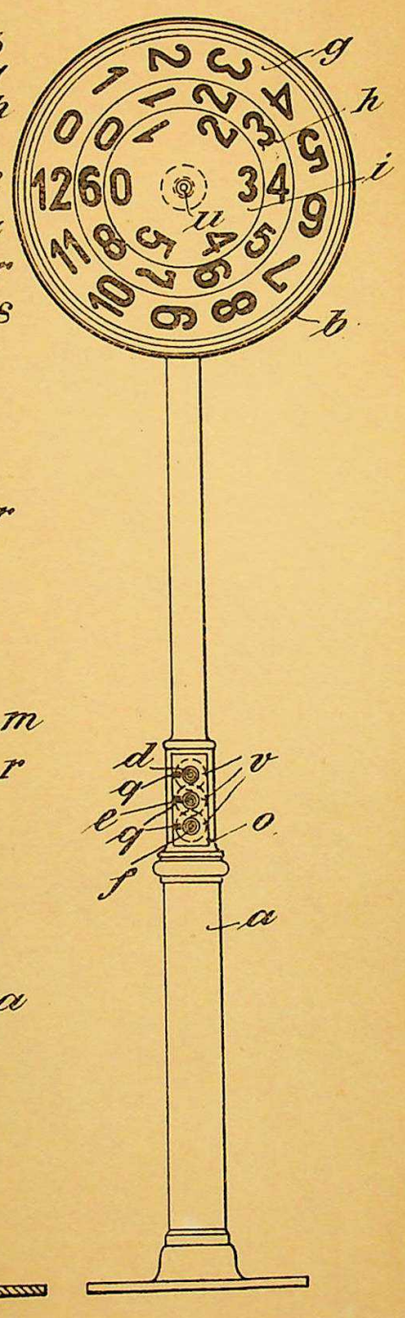

Fig. 5.

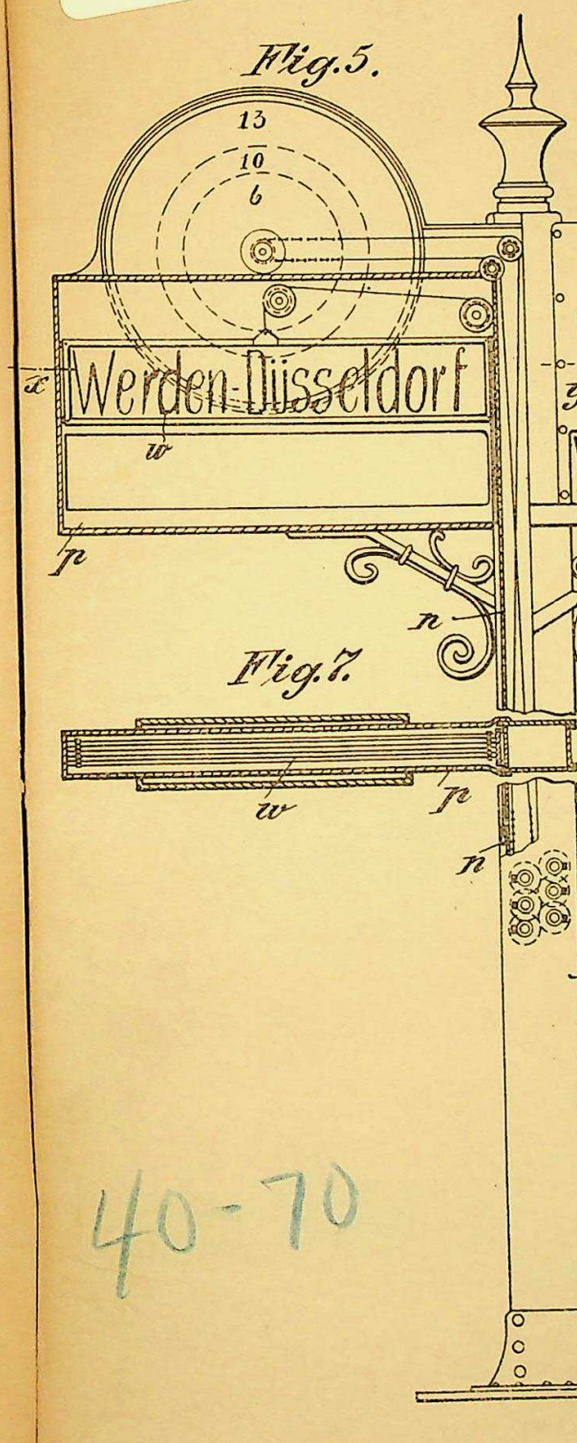

Fig. 4.

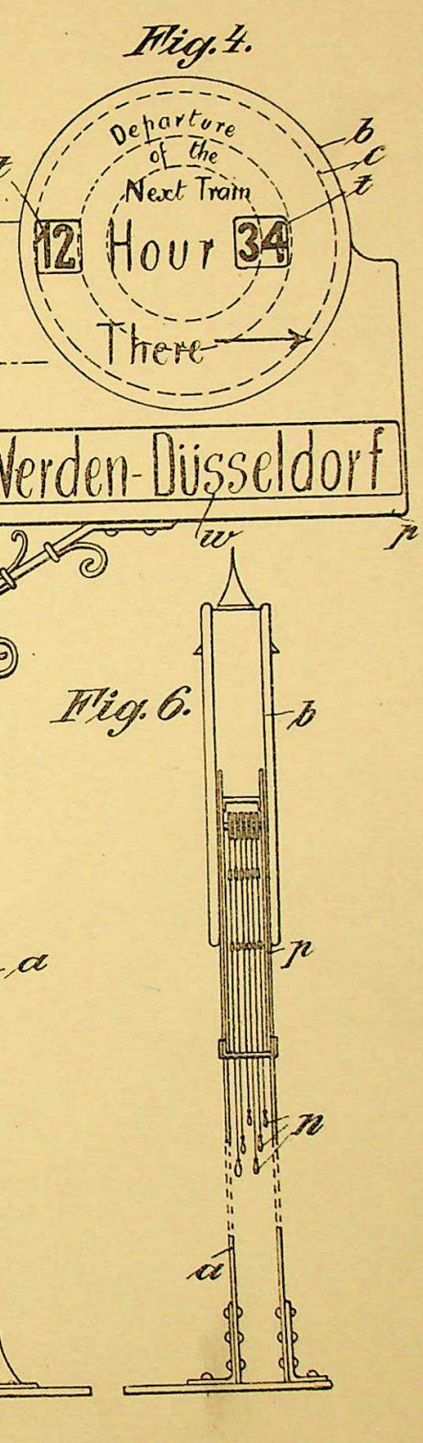

Fig. 7.

Fig. 6.

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VON TARNOGROCKI'S COMPLETE SPECIFICATION.

(2 SHEETS)
SHEET 2.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 8.

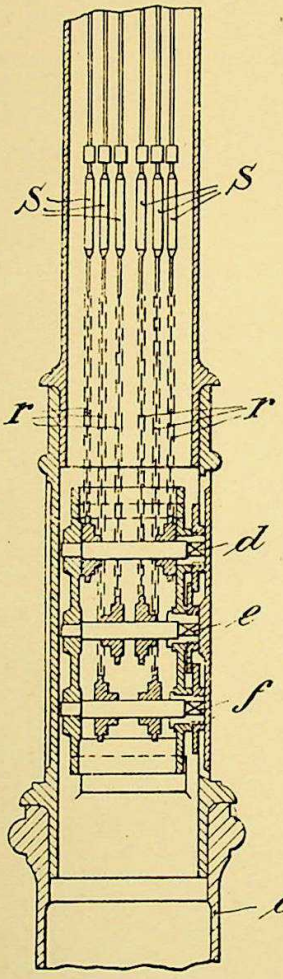


Fig. 9.

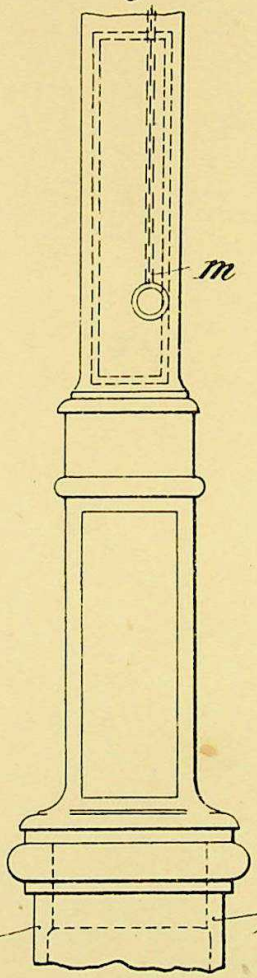


Fig. 10.

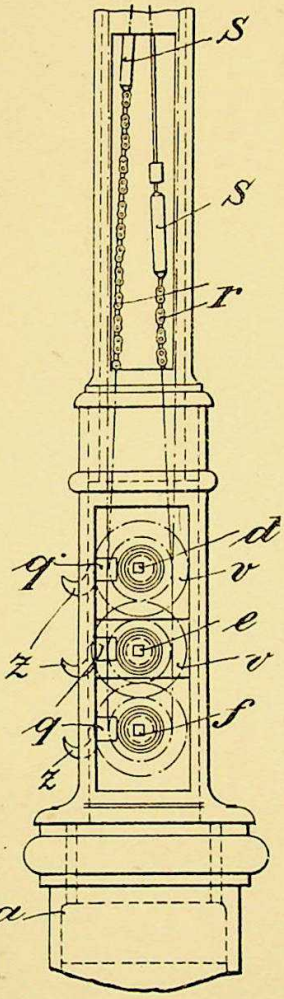
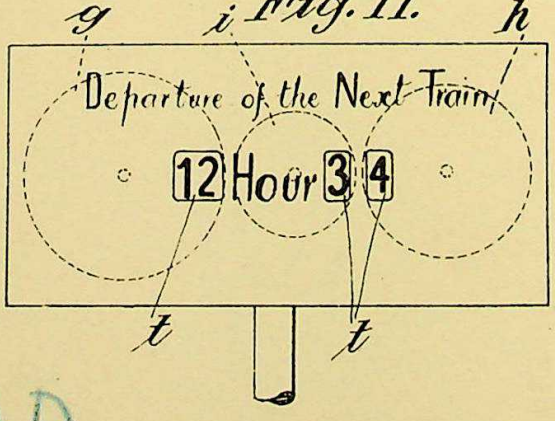


Fig. 11.



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Malby&Sons, Photo-Litho.

N° 6943 A.D. 1905

(*Under International Convention.*)

Date claimed for Patent under Patents Act, 1901, being date of first Foreign Application (in Germany), 2nd Apr., 1904

Date of Application (in the United Kingdom), 1st Apr., 1905

Under Section 1 (2) of the Patents Act, 1901, this Specification became open to public inspection at the expiration of twelve months from the date of the application in Germany

Accepted, 31st Mar., 1906

COMPLETE SPECIFICATION.

"Improvements in Time and Platform Indicators for Railways and the like"

I, ALBRECHT VON TARNOGROCKI, of 11 Herthastrasse, Rüttenscheid, b. Essen, a.d. Ruhr, in the Empire of Germany, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has for its object a time indicating device which is more particularly intended for use on railways for indicating the times of departure of the trains. In accordance with the invention the hour and minute figures which are arranged in inaccessible places and are visible from a distance are placed upon special adjustable discs which are preferably mounted upon a common spindle. These discs may advantageously enclose each other co-axially. Another feature of the invention is that devices are provided by means of which the discs may be operated or set from a distant point.

By means of this novel form of time indicator numerous novel technical results are attained. It is possible to indicate any desired time by means of one and the same indicating apparatus. When any alteration is made in the times of departure of trains the apparatus is always ready for indicating such altered time and it is not necessary to provide indicating tables showing such altered times. It is also important that it should be possible to produce the indication of the various times of departure from a distant point and as in this apparatus it is only necessary to rotate the indicating discs this adjustment does not require any considerable expenditure of force. In addition to the above, this apparatus presents a number of further advantages; for example owing to the said possibility of setting it from a distance, it may be arranged at any desired height, whilst nevertheless it may be exactly controlled.

A constructional form of the apparatus is illustrated in the accompanying drawing, in which:

Fig. 1 is a front elevation of the apparatus showing the hollow stand partly in section.

Fig. 2 is a vertical longitudinal section,

Fig. 3 is a front elevation, the case plate being removed in order to render the indicating discs visible.

[*Price 8d.*]

Figs. 4, 5, 6 and 7 represent a two-sided apparatus for indicating the times of departure in combination with interchangeable platform indicator tables, and of these figs.

Fig. 4 is a front elevation.

Fig. 5 shows the reversed image in section.

Fig. 6 is a section through the stand, and

Fig. 7 is a horizontal section through the raised platform indicator on the line *x*—*y* of Fig. 4.

Figs. 8, 9 and 10 indicate the operating mechanism upon a larger scale, and Fig. 11 shows a modified constructional form.

In the constructional form of indicator in accordance with Figs. 1—3 it is possible to rotate from the hollow stand *a* the discs *g*, *h*, *i* enclosed in the annular frame *b*, by means of chains or wires *r* in such a manner that behind the windows *t* of the indicator discs *c* the time appears.

Upon the smallest of the numeral discs *i*, the numerals from 0 to 5 are marked to represent ten minute intervals or multiples. On the next larger disc *h* the numerals from 0 to 9 represent minutes. The largest disc *g* is provided with the numerals 0 to 12 representing the hours. The 0 is provided in case it should be desired to indicate that no train is starting for some considerable time. The small disc 6, the medium disc 10 and the large disc 13 are likewise provided with figures. By means of this distribution of the figures it is possible to arrange the numeral discs co-axially with the arrangement of the windows here represented.

The operating mechanism is shown on a larger scale in Figs. 8—10. In the hollow stand *a* three spindles *d*, *e*, *f* with chain wheels are mounted for the purpose of actuating the chains or wires *r*. These spindles may be operated by means of detachable handles, cranks or the like. There are mounted upon the spindles *d*, *e*, *f* small numeral discs *v* behind a plate *o* on the stand in which inspection windows *q* are so arranged that the numerals on these small discs appear at the windows when the numerals on the main indicator discs appear at their windows *t*. The numerals shown at the apertures *q* correspond with those appearing at the window of the main indicator.

As shown in Fig. 10, special ratchet wheels are mounted on the spindles of the chain wheels of the operating mechanism, or the discs provided with the indicating numerals may carry locking teeth so that in combination with the releasable locking means *z* it is possible to lock the numeral discs of the operating mechanism in any desired position. This is also advantageous because the hubs of the main numeral discs *g*, *h*, *i*, are superposed in succession in such a manner that upon the shaft *u* there is first of all the hub of the smallest disc *i*, then that of the medium disc *h* and finally that of the largest disc *g*. It is therefore desirable to prevent one disc from participating in the adjustment of another.

Figs. 8—10 also show a tensioning device S arranged in the two lengths of each adjusting mechanism. By means of such tensioning devices, which may be constructed in any desired manner, it is possible on the one hand to compensate for any stretching of the chains or cables and on the other hand to keep the correspondence between the positions of the numerals on the main discs exact with those of the numerals on the operating mechanism discs. This adjustment is effected by slackening one tensioning device and tightening the other.

The main numeral discs *g*, *h*, *i* are preferably duplicated, one set being provided for each side of the indicator. In order to ensure that upon the rotation of one of the spindles *d*, *e f* the proper figures of the respective indicator discs may appear at the corresponding windows, the chains for the rear numeral disc are crossed, or the figures may be arranged thereon in reverse order, as shown in the present case.

In the constructional form represented in Fig. 4—7 the time indicator is

combined with platform indicators *w* which are adapted to be moved up and down by cables *n*, so that they either appear behind windows in a plate *p* or remain invisible.

In both constructional forms of the apparatus an adjustable hand or arrow *s* for indicating the direction is also provided and is adapted to be set in either direction by means of a chain or cord *m* in order that when the indicator is arranged upon platforms having a track upon both sides the device may show which side the next train, the time of departure of which is given, will start.

In Fig. 1 this arrow is shown upon a small plate which is large enough to cover the word "there". The word "there" is inscribed twice upon the disc *c* and the plate upon which the arrow is marked covers one of these inscriptions.

All the various parts of the apparatus may be modified. As shown in Fig. 11 the discs carrying the numerals, instead of enclosing each other may be arranged side by side. In place of three numeral discs in a set, a larger number or even two only may be provided. The discs may also be mounted and operated in a different manner. Instead of effecting the displacement of the numeral discs at the hollow stand, this may take place at any other point, for example in the station master's office or the signal box.

Instead of using chains and chain wheels, racks or electric or other transmission gear may be employed for effecting the adjustments. If electricity is employed the arrangement may be such that the discs are moved forward intermittently by electric impulses or by periodically interrupted action of the current. The means for indicating whether the correct time has been shown on the apparatus may be of any convenient kind. In the same manner the means for locking the numeral discs in the selected positions may vary as desired. Finally the time indicator may be connected with the platform indicator in any convenient manner.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A time indicator more particularly adapted for railways and characterized by the fact that the discs provided with numerals for indicating hours and minutes adapted to be read from a distance and usually arranged in inaccessible places and which may conveniently enclose each other co-axially are positively connected with adjusting and locking mechanism arranged in a readily accessible position, that all the figures may be set independently of each other and that the setting mechanism is adapted to repeat the indication at the place from which the indicator is operated in order that it may be seen at this place whether the apparatus has been properly set, without looking at the said apparatus itself.

2. A time indicator, of the kind hereinbefore described, characterized by the fact that in connection with the setting mechanism or connections tensioning devices are arranged in order to render it possible to ensure the correspondence of the indicating or repeating figures at the operating station with the main indicating figures by lengthening or shortening one or other of these connections.

3. A time indicator of the kind claimed in Claims 1 and 2 constructed and arranged and having its parts adapted to operate substantially as described with reference to the accompanying drawings for the purpose specified.

Dated this 30th day of March, 1906.

HASELTINE, LAKE & Co.,
7 & 8 Southampton Buildings, London,
Agents for the Applicant.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1906.